Quality Improvement Organizations
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CENTERS FOR MEDICARE & MEDICAID SERVICES

Great Plains Quality Innovation Network

Better Together

Connecting the Dots
Antibiotics, Immunizations, and Sepsis

March 15, 2022
3:00 – 4:00 pm CT

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Krystal Hays, DNP, RN, CADDCT, CDP, RAC-CT

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Polling Question #1

- The description that best fits my organization:

❑Nursing Home
❑Hospital
❑Home Health/Hospice
❑Clinic
❑Other

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Objectives

- Understand the connection between sepsis, immunizations and antibiotics
- Review data related to sepsis in the Dakotas
- Recognize the role immunizations play in avoiding unnecessary antibiotics
- Review resources to support antibiotic stewardship, sepsis recognition and immunization

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Polling Question #2

- My organization has worked on sepsis outreach and awareness:
  - ❑Yes
  - ❑No
  - ❑Not sure

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Video The Faces of Sepsis

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What is Sepsis?

- Sepsis is the body's extreme response to an infection. It happens when an infection your patient already has— like in their skin, lungs or urinary tract—triggers a chain reaction throughout their body
- Sepsis rapidly leads to tissue damage, organ failure and death
- **Sepsis is life-threatening and requires prompt treatment. Early recognition and treatment of sepsis saves lives**

https://www.cdc.gov/sepsis/what-is-sepsis.html

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Sepsis: The Impact

- 270,000 Americans die each year from sepsis
- 87% of sepsis cases start in the community, not in a hospital
- The risk of death increases 8% every hour that sepsis goes untreated
- 1 person - every 2 minutes - dies from sepsis in the United States
- 35% of American adults have NEVER heard of sepsis

Source: Sepsis Alliance Sepsis Fact Sheet - https://www.sepsis.org/education/resources/fact-sheets/

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Sepsis: The Cost Nationally

The 20 most expensive conditions, 2013:	Rank	Aggregate hospital costs, $ millions	National costs, %	Number of hospital stays, thousands	Hospital stays, %
Treated in U.S. hospitals, all payers	1	23,663	6.2	1,297	3.6
Billed to Medicare	1	14,551	8.2	838	6.0
Billed to Medicaid (Second to live births)	2	3,354	5.3	143	1.9
Billed to private insurance	4	4,028	3.7	218	2.0
For uninsured individuals	1	1,054	5.7	62	3.0

Source: H-CUP Statistical Brief #204;
hcup-us.ahrq.gov/reports/statbriefs/sb204-Most-Expensive-Hospital-Conditions.jsp

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Data

ND Top Admission DRG Bundles by Discharge Aug 2020-Jul 2021

North Dakota	RESPIRATORY INFECTIONS & INFLAMMATIONS	1778
North Dakota	SEPTICEMIA OR SEVERE SEPSIS	1576
North Dakota	HEART FAILURE & SHOCK	848
North Dakota	ACUTE MYOCARDIAL INFARCTION	597
North Dakota	SIMPLE PNEUMONIA & PLEURISY	542

SD Top Admission DRG Bundles by Discharge Aug 2020-Jul 2021

South Dakota	RESPIRATORY INFECTIONS & INFLAMMATIONS	2158
South Dakota	SEPTICEMIA OR SEVERE SEPSIS	1887
South Dakota	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY	1300
South Dakota	HEART FAILURE & SHOCK	1112
South Dakota	SIMPLE PNEUMONIA & PLEURISY	720

ND Top Readmission DRG Bundles by Discharge Aug 2020-Jul 2021

North Dakota	RESPIRATORY INFECTIONS & INFLAMMATIONS	245
North Dakota	SEPTICEMIA OR SEVERE SEPSIS	238
North Dakota	HEART FAILURE & SHOCK	157
North Dakota	PSYCHOSES	111
North Dakota	ACUTE MYOCARDIAL INFARCTION	102

SD Top Readmission DRG Bundles by Discharge Aug 2020-Jul 2021

South Dakota	SEPTICEMIA OR SEVERE SEPSIS	268
South Dakota	RESPIRATORY INFECTIONS & INFLAMMATIONS	264
South Dakota	HEART FAILURE & SHOCK	239
South Dakota	PSYCHOSES	174
South Dakota	G.I. HEMORRHAGE	118

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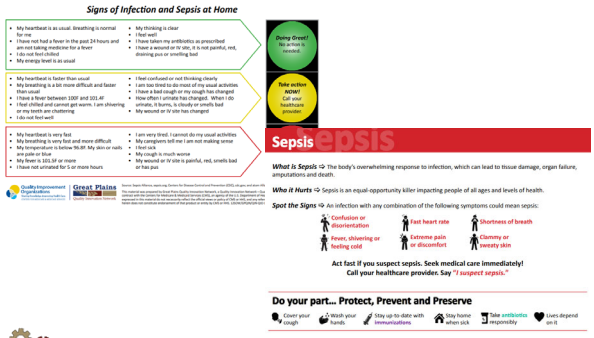
Signs and Symptoms of Sepsis



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Sepsis Awareness is Critical

- Sepsis is a community problem
- Four preventative steps:
  - Prevent infections
  - Good hygiene
  - Know the symptoms
  - Act FAST if sepsis is suspected

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Sepsis

"as the physicians say it happens in hectic fever, that in the beginning of the malady it is easy to cure, but difficult to detect, but in the course of time, not having been either detected or treated in the beginning, it becomes easy to detect, but difficult to cure"

- Niccolò Machiavelli

https://www.cdc.gov/sepsis/what-is-sepsis.html

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Polling Question #3

- My organization has implemented the CDC Core Elements of Antibiotic Stewardship:

  ❑Yes
  ❑No
  ❑Not sure

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Antibiotic/Antimicrobial Resistance

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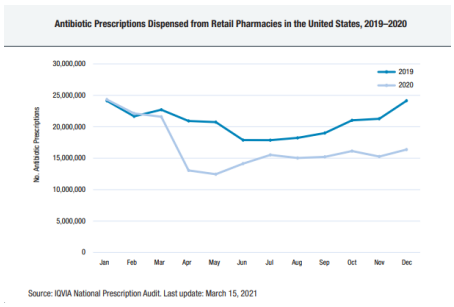
Antibiotic Data



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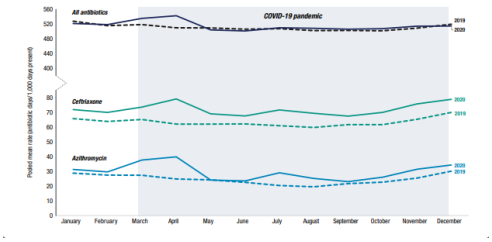
Hospital Data

Total Facility-wide Inpatient Antibiotic Use Across 808 U.S. Hospitals, January 2019–January 2020



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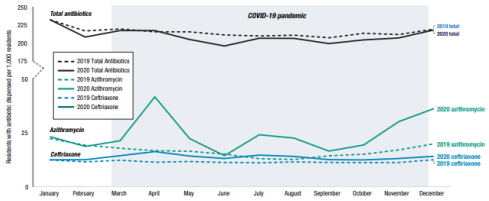
Nursing Home Data

All Antibiotic, Azithromycin, and Ceftriaxone Use Among U.S. Nursing Home Residents, January – December 2019 and January – December 2020



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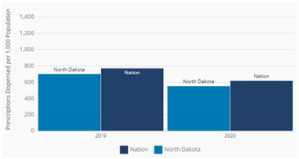
Antibiotic Use in the Dakotas

North Dakota



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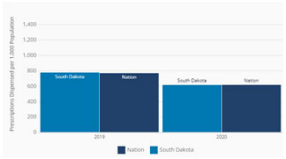
South Dakota



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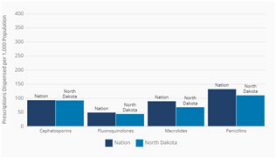
Antibiotic Use in the Dakotas

North Dakota



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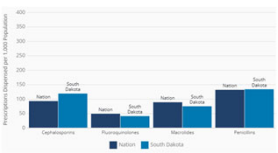
South Dakota



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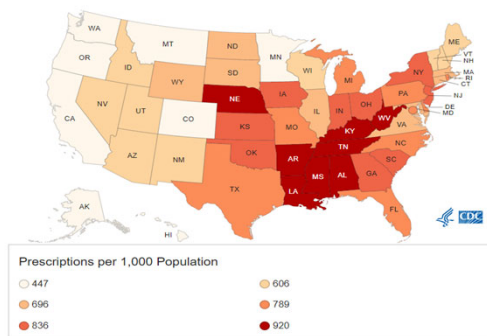
Community Antibiotic Prescriptions Per 1,000 Population by State - 2019



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Antibiotic Resistance Video

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Antibiotic Prescribing

Guide to Using Outpatient Antibiotic Prescription Data for Peer Comparison Audit & Feedback

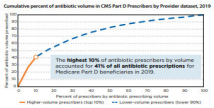
DATA FOR ACTION

Audit and feedback for clinicians on individual antibiotic prescribing practices, especially when including comparison with peers, has been shown to be effective at improving antibiotic prescribing.[1,2]

Centers for Medicare & Medicaid Services (CMS) provides publicly available Part D prescription data files with counts of drug claims aggregated at different levels. The Prescribers by Provider data file can be used by public health organizations and health systems to assess antibiotic prescribing among adults ≥65 years of age and identify prescribers for peer comparison audit and feedback interventions.[3,4,5]

CMS PART D PRESCRIBER FILES*	DATA ELEMENTS
NATIONAL, BY GEOGRAPHY AND DRUG	antibiotic class and agent
STATE, BY GEOGRAPHY AND DRUG	antibiotic class and agent, state and geographic region†
BY PROVIDER	antibiotic total count, prescriber characteristics (National Provider Identifier, specialty, ZIP code)
BY PROVIDER AND DRUG	antibiotic class and agent, prescriber characteristics

*Limitations: Counts of drug claims <11 are suppressed in the CMS Part D Prescriber Public Use Files, which has a larger impact at the prescriber level compared to the national level. Indication is not available; therefore, appropriateness cannot be assessed.



1. https://www.cdc.gov/antibiotic-use/pdfs/outpatient-rx-analytic-guide-508.pdf

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Antibiotic Stewardship Resources | NEW and UPDATED

- CDC has many resources available on antibiotic use and stewardship that can be used by healthcare professionals, facilities, partners and patients

Core Elements of Antibiotic Stewardship:
cdc.gov/antibiotic-use/core-elements/index.html

Print Materials:
cdc.gov/antibiotic-use/print-materials.html

Educational Resources for Healthcare Professionals:
cdc.gov/antibiotic-use/training/materials.html

Be Antibiotics Aware Toolkit:
cdc.gov/antibiotic-use/week/toolkit.html

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New Resources

- **Nursing Home Viruses/Bacteria Chart**
cdc.gov/antibiotic-use/pdfs/VirusOrBacteria-NH-P.pdf

- **Long-Term Care Pharmacy Posters**
cdc.gov/antibiotic-use/training/materials.html#anchor_1626372074279

- **Hospital Discharge Poster**
cdc.gov/antibiotic-use/pdfs/BAA-Hospital-Discharge-Flowchart-P.pdf

- **Watchful Waiting for Ear Infections Prescription Pad**
cdc.gov/antibiotic-use/pdfs/WatchfulWaitingEar-P.pdf

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Health Equity and Antibiotic Use

BE ANTIBIOTICS AWARE

GET AHEAD OF SEPSIS

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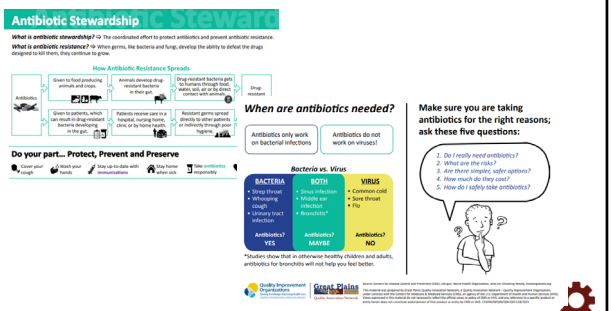
Antibiotic Stewardship



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Defense Strategies

- Follow infection prevention and control guidelines, including screening at-risk populations
- Ask if recently received care in another facility or traveled to another country
- Alert receiving facility when transferring a person who is colonized or infected with an antibiotic-resistant germ
- Educate on ways to prevent spread of germs and infection
- Stay informed of current outbreaks
- Improve antibiotic prescribing
- Ensure receive recommended vaccines, talk to families about:
  - Preventing infections
  - Keeping wounds clean
  - Managing chronic conditions
  - Seeking medical care when an infection is not getting better
  - Understanding when antibiotics are needed

Source: cdc.gov/drugresistance/healthcare-providers.html

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Improve Antibiotic Prescribing

- Follow clinical and treatment guidelines
- Implement CDC's Core Elements of Antibiotic Stewardship to ensure appropriate antibiotic use
- Consider fungal infections for patients with respiratory infections that do not respond to antibiotics, for example Valley fever (coccidioidomycosis), histoplasmosis, or blastomycosis
- Watch for signs and symptoms of sepsis: Clinical Resources and Guidelines
- Perform appropriate diagnostic tests to guide antibiotic therapy, including correct drug, dose (amount), and duration (period of time)

cdc.gov/drugresistance/healthcare-providers.html

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Polling Question #4

- Improving immunizations has been a priority in my organization.

❑Yes
❑No
❑Not sure

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Immunization Data

North Dakota	South Dakota
INFLUENZA	**INFLUENZA**
Nursing Home 97.9%	Nursing Home 96.8%
Community 66.8%	Community 64.0%
PNEUMOCOCCAL	**PNEUMOCOCCAL**
Nursing Home 98.5%	Nursing Home 94.1%
Community 74.1%	Community 73.1%

Community Influenza & Pneumococcal data – Senior Data by State 2020, ages 65+ : americashealthrankings.org/explore/senior
Nursing Home Influenza & Pneumococcal data – CMS Data Sets MDS Quality Measures: data.cms.gov/provider-data/dataset/djen-97ju

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Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
Haemophilus influenzae type b vaccine	Hib	ActHIB® Hiberix® PedvaxHIB®
Hepatitis A vaccine	HepA	Havrix® Vaqta®
Hepatitis A and hepatitis B vaccine	HepA-HepB	Twinrix®
Hepatitis B vaccine	HepB	Engerix-B® Recombivax HB® Heplisav-B®
Human papillomavirus vaccine	HPV	Gardasil 9®
Influenza vaccine (inactivated)	IIV4	Many brands
Influenza vaccine (live, attenuated)	LAIV4	FluMist® Quadrivalent
Influenza vaccine (recombinant)	RIV4	Flublok® Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II®
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM MenACWY-TT	Menactra® Menveo® MenQuadfi®
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero® Trumenba®
Pneumococcal 15-valent conjugate vaccine	PCV15	Vaxneuvance™
Pneumococcal 20-valent conjugate vaccine	PCV20	Prevnar 20™
Pneumococcal 23-valent polysaccharide vaccine	PPSV23	Pneumovax 23®
Tetanus and diphtheria toxoids	Td	Tenivac® Tdvax™
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel® Boostrix®
Varicella vaccine	VAR	Varivax®
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

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CDC Vaccine Schedules App

CDC Vaccine Schedules 12+

Centers For Disease Control and Prevention

Designed for iPad

3.5 • 65 Ratings

Free

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COVID-19 Vaccines/Boosters and Motivational Interviewing (MI)

- COVID-19 vaccines are safe, effective and free. Get answers to frequently asked questions and bust myths about vaccines
- Why use MI for vaccine support?
- "MI is a collaborative, goal-oriented style of communication with attention to language of change. Designed to strengthen personal motivation for and commitment to a goal by eliciting and exploring a person's own reasons for change with acceptance and compassion" (Miller & Rollnick)
- View GPQIN Motivational Interviewing to Build Trust in Vaccinations webinar recording

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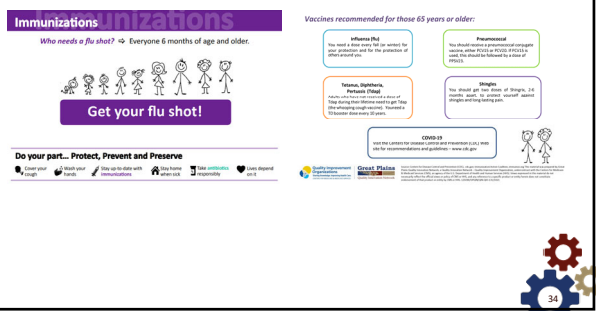
Immunizations



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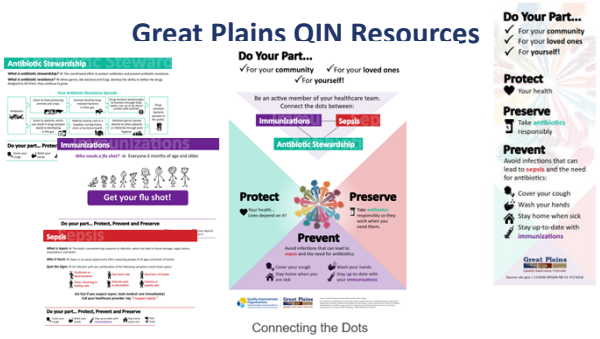
Great Plains QIN Resources



Connecting the Dots

Poster – Download 8.5 x 11

Poster – Download 11 x 17

Immunization Poster – Download 8.5 x 11

Sepsis Poster – Download 8.5 x 11

Antibiotic Stewardship – Download 8.5 x 11

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- Collecting the Dots. Then Connecting Them. And then sharing the connections with those around you. This is how a creating human works. Collecting. Connecting. Sharing...

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Sharing Knowledge. Improving Health Care.
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Great Plains
Quality Innovation Network

Better Together

Great Plains QIN aspires to make health in our region the best in the nation

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